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DIRECTORATE OF INTELLIGENCE

Intelligence Memorandum

Soviet Tactical Air Forces: New Capabilities and Roles for the 1970's

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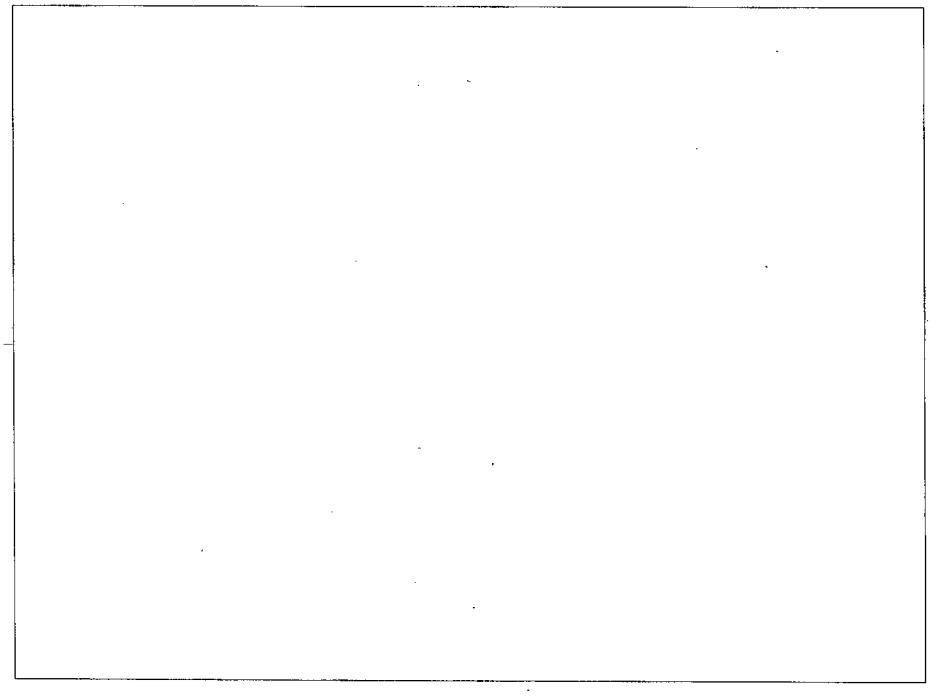


CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
10 January 1969

INTELLIGENCE MEMORANDUM

Soviet Tactical Air Forces: New Capabilities and Roles for the 1970's

Summary

Front Aviation--the tactical air arm which supports Soviet ground forces--is approaching a transitional period in which its capabilities and roles will probably be expanded to match changing concepts of modern warfare.

The current composition of Front Aviation is a result, in part, of the military doctrine under Khrushchev which held that war between nuclear powers would quickly escalate into nuclear conflict. Under this concept, the need for tactical strike aircraft with large payloads declined, and the light bomber force was reduced to about one-sixth its former size as tactical missiles became the primary weapon for nuclear strikes behind enemy lines.

High priority was given to qualitative improvements in tactical air defenses, and older interceptors were replaced almost entirely by all-weather MIG-21 Fishbed interceptors. Close support of ground troops remained an important mission of Front Aviation, and supersonic SU-7 Fitter fighter-bombers with a nuclear delivery capability were introduced.

Note: This memorandum was produced solely by CIA. It was prepared by the Office of Strategic Research and coordinated with the Offices of National Estimates and Scientific Intelligence.

These re-equipment programs are drawing to a close. Meanwhile, Soviet military theorists have begun to shift away from the idea that modern warfare inevitably will be nuclear, at least in the initial stages of a conflict in Europe.

The next round of re-equipment is expected to concentrate on more versatile aircraft capable of carrying larger conventional payloads as well as nuclear weapons, in addition to providing improved air defense and reconnaissance capabilities. Several new tactical aircraft are now under development for this purpose.

The first of the new tactical aircraft to enter service will probably be the Mikoyan-designed Foxbat, which the Soviets describe as an interceptor, strike, and reconnaissance aircraft. It can fly at speeds approaching Mach 3 and at altitudes up to 70,000 feet. Its combat radius is at least twice that of the strike aircraft currently operational in Front Aviation. The first Foxbats probably will begin to enter operational units about 1970.

Another new fighter with significantly improved ground attack capabilities probably will enter service in the early 1970's. Any of several new aircraft currently being tested could be adapted for this role. The Soviets may select one fighter capable of performing effectively in both ground attack and air defense rather than develop a specialized aircraft for each role.

Battlefield reconnaissance is also receiving greater attention, and a reconnaissance version of the Foxbat probably will be deployed in the next few years to provide the Soviets with a Mach-3, high-altitude reconnaissance capability.

Evolution of the Current Force

1. The primary mission of Front Aviation--generally referred to as the Tactical Air Forces or Tactical Aviation--is to support Soviet ground operations. Support of strategic air defense forces is a secondary mission. The major tasks of Front Aviation are to provide air defense of the ground forces, to carry out ground attacks in close support of Soviet forces on the battlefield, to perform tactical strikes behind enemy lines for the interdiction of enemy movements and the neutralization of the enemy's nuclear weapons delivery capability, and to conduct battlefield reconnaissance.

2. At present, nearly half the 3,500 combat aircraft in Front Aviation are assigned to units which are primarily responsible for air defense of the battlefield area. The air defense regiments in Front Aviation now are almost entirely equipped with modern, high-speed, all-weather fighters. More than half the aircraft assigned to the light bomber, ground attack, and reconnaissance regiments, however, are older models produced in the early and mid-1950's. (See table, next page.)

3. The de-emphasis of tactical strike capabilities of Front Aviation evolved from the Soviet belief that war between nuclear powers would quickly escalate into nuclear conflict. Consequently there was no need for large formations of bomber aircraft with large bomb loads. It was felt that many of the tactical strike missions traditionally assigned to aircraft could be handled more effectively and economically by tactical missiles with nuclear warheads.

4. Survival from enemy attack was to be sought through dispersal of Front Aviation forces to predesignated alternate airfields at the first sign of hostilities. Surviving air units would then move forward with the advancing ground forces and operate from hastily prepared, natural-surface runways.

5. The bulk of the aircraft now deployed with Front Aviation--MIG-21 Fishbed fighters, SU-7 Fitter fighter-bombers, and YAK-28 Brewer light

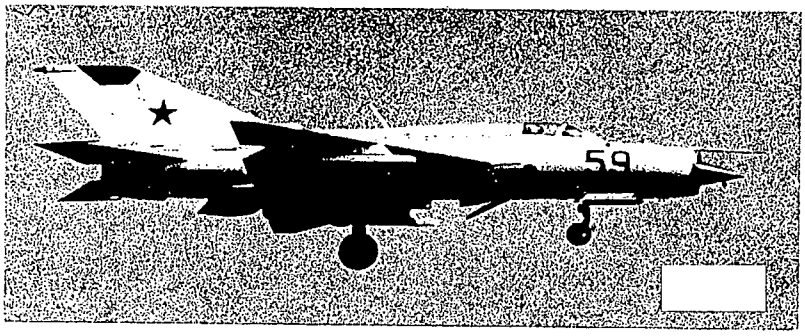
Estimated Number of Aircraft in Soviet Front Aviation,
by Primary Mission and Aircraft Type
End of 1968

Mission	Total	MIG-17 Fresco	MIG-19 Farmer	MIG-21 Fishbed	YAK-28 Firebar	SU-7 Fitter	IL-28 Beagle	YAK-28 Brewer	YAK-27/28 Mangrove/ Maestro
Air defense	1,550	160	65	1,300	25				
Ground attack	1,040	550				490			
Light bomber	360						180	180	
Reconnaissance	550	40		100			260		150
Total	3,500	750	65	1,400	25	490	440	180	150

bombers--began entering service in 1960-61 as part of the effort to meet the requirements then envisioned for nuclear war. (See the Appendix for the number of new-generation Front Aviation aircraft produced since 1958.)

Air Defense Forces

6. Although some of the responsibility for air defense of the combat area has been assumed by surface-to-air missile forces, primary responsibility for theater air defense remains with the fighter aircraft of Front Aviation. Nearly all of the air defense regiments in Front Aviation have been equipped with MIG-21 fighters. These Mach-2 aircraft provide an effective weapon system for air-to-air combat at medium and high altitudes, i.e. 3,000 to 70,000 feet.

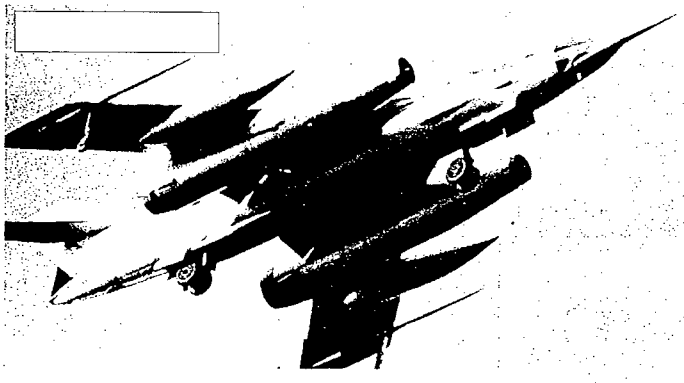


MIG-21 Fishbed F All-Weather Interceptor

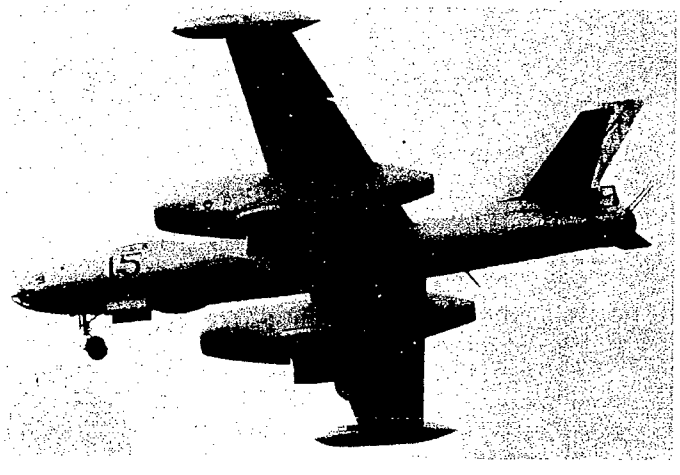
7. The MIG-21 was designed in accordance with the Soviet concept of a mobile tactical fighter force. It is capable of operating from dispersed, hastily prepared airfields in or near the battlefield area and can be maintained, refueled, and rearmed quickly and easily. MIG-21 aircraft produced since about mid-1965 have incorporated modifications to the wings and control surfaces which provide an improved capability for takeoff and landing on relatively short runways. In addition, rocket or jet-assisted takeoff has been introduced to operational MIG-21 units.

Tactical Strike Forces

8. Since tactical missile forces have assumed many of the strike responsibilities--especially against fixed targets--formerly belonging to aircraft, the primary task for light bomber aircraft was reduced to strikes against mobile targets in the enemy rear. This has led to a decline in the number of light bombers in Front Aviation, and the current light bomber force is only about one-sixth the pre-1960 level. Production of new-generation YAK-28 Brewer light jet bombers ended with only about half of the older IL-28 Beagle light bombers having been replaced. The light bomber force now consists of some 180 YAK-28's and the same number of IL-28's--the newest of which is 11 years old.



YAK-28 Brewer Light Bomber



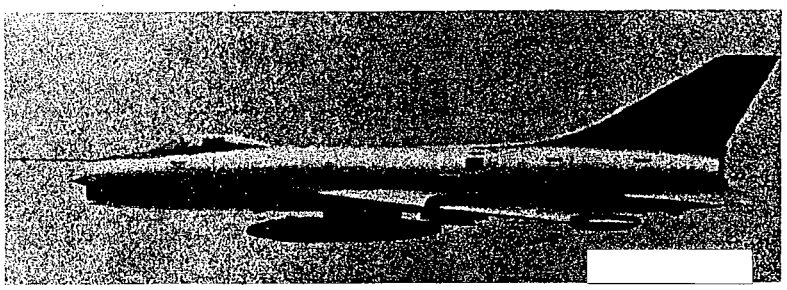
IL-28 Beagle Light Bomber

Ground Attack Forces

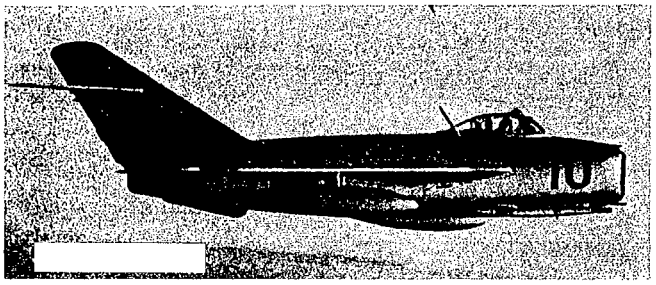
9. The number of fighter-bombers assigned to ground attack regiments has nearly doubled since

1960. In addition to providing close support for ground operations, fighter-bombers can carry out short-range interdiction and neutralization strikes. The development of small nuclear weapons provided fighter-bombers with the destructive potential of bomber aircraft. As a result, these aircraft have assumed some tactical strike responsibilities. As in the case of the light bombers, however, Soviet fighter-bombers have small conventional bomb capacities.

10. About half the ground attack units in Front Aviation are equipped with SU-7 Fitter fighter-bombers, which began to enter service in early 1960. The remainder are equipped with MIG-17 Frescos, all of which were produced in the mid-1950's. In addition, the Soviets have taken steps to provide the MIG-21 fighter, which is primarily an air defense aircraft, with an improved ground-attack capability. The MIG-21 has a small payload, however, and its function remains primarily air defense.



SU-7 Fitter Fighter-Bomber



MIG-17 Fresco Fighter

Future Trends

11. The re-equipment programs initiated in the early 1960's are now in their final stages. Aircraft deliveries to Front Aviation during the past year and a half have been at the lowest level since 1961. Production of light bombers has already ended, and production of MIG-21 and SU-7 aircraft apparently is being phased out.

12. The ending of these programs marks a transitional phase for Front Aviation. Little change is expected in the composition of the force during the next year or two, but the Soviets have been testing a series of new-generation aircraft which probably will begin entering service in the early 1970's. Introduction of the new aircraft into Front Aviation will result in qualitative improvements in the tactical strike, ground attack, and reconnaissance capabilities of the force which will bring them much closer to the air defense capabilities of Front Aviation.

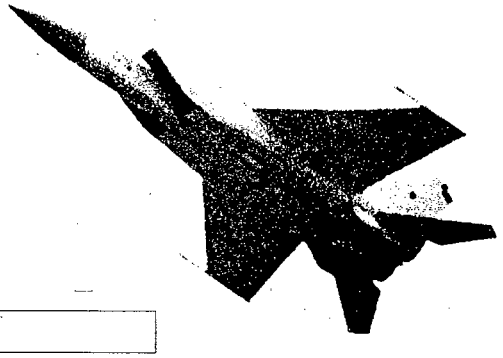
13. Soviet military leaders have begun to shift toward the idea that nonnuclear conflict between major powers could occur in the nuclear age. They recognize the need for tactical strike and ground attack aircraft capable of carrying effective conventional payloads as well as nuclear weapons and of operating from short runways close to the battlefield. Several of the new fighters now being tested can carry larger and more versatile payloads than the fighters currently in service, and most have lift engines or swing wings for vertical or short takeoff and landing. By about 1972, one or two new swing-wing or lift-engine aircraft probably will have entered service.

Tactical Strike Forces

14. Although the role of tactical strike aircraft, or what the Soviets call "front bombers," has not reached its former prominence, neutralization of mobile nuclear weapons delivery systems located behind enemy lines remains a major function of Front Aviation. The YAK-28 Brewer apparently did not satisfy the Soviet requirement for a "front bomber," since production of

the YAK-28 ended with only half of the light bomber units having been re-equipped with the new aircraft.

15. The Foxbat, a new Mikoyan aircraft currently being tested as an interceptor, has considerable potential as a tactical strike aircraft. The Foxbat is believed to be a multipurpose aircraft which can carry a variety of weapons and reconnaissance systems. At the 1967 air show, the Soviets described it as an interceptor, strike, and reconnaissance aircraft.



Foxbat

16. In recent record-breaking flights, the Foxbat demonstrated a capability for sustained flight at speeds near Mach 3 while flying at altitudes of nearly 70,000 feet with a payload large enough for an effective tactical strike mission. The combat radius of the Foxbat with a 2-ton payload is over 1,000 nm.

17. Although the Foxbat has been active at a weapons test facility for over two years, no air-to-ground weapon system has been firmly associated with the aircraft. The discovery of a new bombing range at the test facility indicates that testing of some such system is taking place there, however, and aircraft believed to be Foxbat have been detected

at another test range in activity which suggested testing of a bombing system.

18. About ten Foxbat aircraft have been produced for developmental purposes, and operational deployment of a tactical strike version is expected about 1970. Production of the Foxbat could begin at any time at Gor'kiy Airframe Plant 21, where MIG-21 production appears to be terminating. The Foxbat will be produced at a much lower rate than the MIG-21 due to its size and complexity. A maximum output of about ten a month is expected, compared to about 30 a month for the MIG-21.

19. An aircraft with the capabilities of the Foxbat would increase the Soviets' chance of penetrating current NATO air defenses and for neutralizing NATO's mobile nuclear weapons delivery systems.

Ground Attack Forces

20. Few SU-7 fighter-bombers have been delivered to tactical air units in the past two years. Since production is declining and most of the SU-7's produced since 1966 have been exported, the Soviets apparently do not intend to replace the remaining MIG-17 fighters with SU-7's. In view of the increased Soviet appreciation for ground attack operations, however, it is unlikely that the number of ground attack aircraft will be reduced. But it is equally unlikely that the Soviets will continue to rely so heavily on the aging MIG-17 for ground attack. It is expected, therefore, that a new fighter with significantly improved ground attack capabilities will enter service in the early 1970's.

21. At present, there is no evidence that a new ground attack aircraft is under development, but any of several new aircraft currently being tested could be adapted for this role. Two of these are swing-wing aircraft which probably can carry payloads at least as large as the SU-7. Their swing wings will also provide them with a longer range and a capability to operate from shorter runways than the SU-7. One of these two aircraft, the

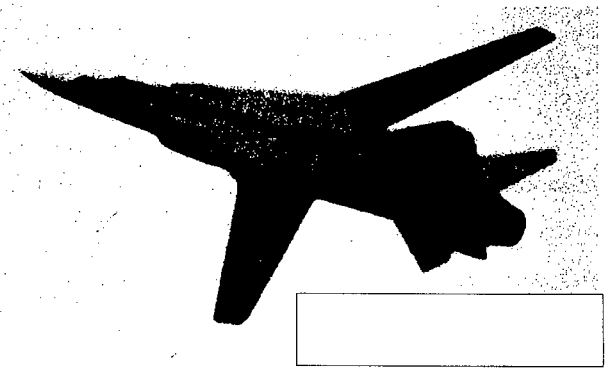
Flogger, has considerable potential for air defense as well as ground attack and could provide tactical fighter units with an improved dual-mission capability. Therefore, the Soviets may select one fighter with both a ground attack and air defense capability rather than develop a specialized fighter for each role.

22. Aircraft with lift engines also are being tested. Although lift engines cause loss of range, this could be offset by the ability of lift-engine aircraft to operate from short air strips near the front.

Air Defense Forces

23. Heretofore, the Soviets have favored maneuverability and simplicity over range and payload in designing fighters for air defense. In addition, the airborne intercept radar installed in present fighter interceptors has a relatively short range. These factors limit the ability of the fighters to conduct long patrols and to seek out enemy targets during defensive operations.

24. The swing-wing Flogger follows earlier Soviet trends toward light, maneuverable fighters, while at the same time offering improvement in dispersal and other performance capabilities. It can fly supersonically at both high and low altitudes, has a maximum speed of about Mach 2.5 at 36,000 feet, and can operate from airfields less than 2,000 feet long. The swing-wing design would enable



Flogger Variable-Geometry Fighter

it to remain on station longer than current fighters in Front Aviation since it can cruise at subsonic speeds with the wings extended and thereby use less fuel. For supersonic pursuit and attack, the wings can be swept back.

25. The 450-nm combat radius of the Flogger--nearly 200 nm more than the combat radius of the MIG-21--is expected to be complemented by longer range radar. The aircraft is also expected to have improved low-altitude capabilities and longer range air-to-air missiles. It probably will begin entering service in air defense regiments of Front Aviation by about 1971.

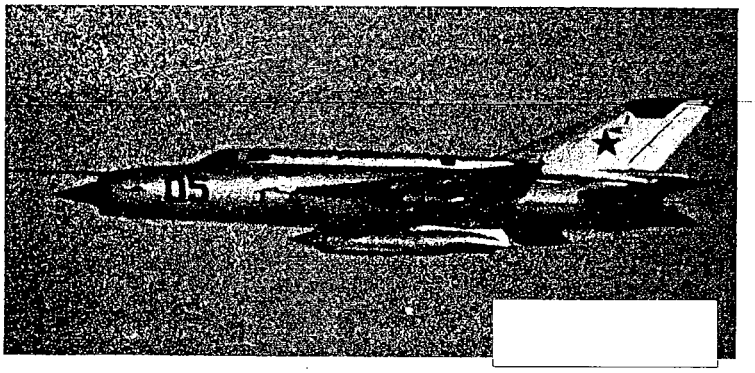
26. The Foxbat is also being developed as an interceptor, but this version probably will be deployed with strategic air defense interceptor units (IAPVO) rather than Front Aviation.

Reconnaissance Forces

27. The Soviets also have recognized the need for improved battlefield reconnaissance. All reconnaissance units in Front Aviation have the dual responsibility of intelligence collection and armed reconnaissance, and Soviet reconnaissance aircraft are capable of attacking targets of opportunity on search and strike missions.

28. A reconnaissance version of the YAK-28 was deployed with Front Aviation concurrently with delivery of the light bomber variant, and deployment of a new reconnaissance version of the MIG-21 fighter is now under way. The new MIG-21, designated Fishbed H, has been modified to carry advanced reconnasisance equipment while retaining the combat armament of the standard MIG-21 fighter.

29. A recent article in a Soviet military journal discussed the need for more rapid transmission of reconnnaissance data. Considerable space was devoted to the employment of advanced reconnaissance aircraft in conjunction with strike aircraft in search-and-destroy operations. Some of the advanced systems advocated in the article



MIG-21 Fishbed H with Reconnaissance Pod

such as side-looking radar or video displays may have been incorporated into the new MIG-21 reconnaissance aircraft.

30. The growing emphasis on tactical reconnaissance is expected to lead to deployment of even more advanced systems in the next few years, and a reconnaissance version of the Foxbat probably will be deployed, providing the Soviets with a Mach-3 high-altitude reconnaissance capability.

Appendix

Production of New-Generation Combat Aircraft Deployed with Soviet Front Aviation, 1958-1968 a/

Type	Producing Plant	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	Total
MIG-21 Fishbed b/													
(Day fighter)	Gor'kiy Airframe Plant 21	7	60	200	270	65							600
(All-weather)	Gor'kiy Airframe Plant 21					200	360	360	360	360	350	150	2,200
SU-7 Fitter c/													
(Fighter-bomber)	Komsomol'sk Airframe Plant 26	2	85	100	85	160	140	140	160	180	180	120	1,400
YAK-28 Brewer d/													
(Light bomber)	Irkutsk Airframe Plant 39			20	30	35	35	65	90	20	10		300
(Trainer/Recce) e/	Irkutsk Airframe Plant 39			5	20	35	35	35	35	25	15		200
YAK-27 Mangrove													
(Recce)	Saratov Airframe Plant 292	10	20	60	10								100
Total		20	160	380	420	500	570	600	650	590	560	270	4,800

a. Numbers have been rounded to two significant digits and totals are independently rounded.
b. In addition, nearly 1,500 have been produced at Moscow Airframe Plant 30 for export. Also, some 130 early model MIG-21's were produced in 1957-58, none of which entered service with Front Aviation.
c. Numbers include some 300 to 350 aircraft produced for export, but exclude about 75 interceptor-fighter variants produced in 1957-58, none of which entered service with Front Aviation.
d. About 500 all-weather interceptor variants were produced at Novosibirsk Airframe Plant 153 in 1963-66. Only 25 of these were deployed with Front Aviation, however.
e. Numbers include trainers used for YAK-28 interceptor units in IAPVO.